Body Organization & Skeletal System

Body Organization

* Cells – tissues – organs – organ systems
  + Tissue types – muscle, nerve, connective, epithelial
  + Examples of organs – heart, brain, liver, lungs, stomach, skin
  + Organ systems – skeletal, muscular, circulatory, digestive, nervous, respiratory, endocrine, excretory, reproductive
* Organ systems work together to maintain homeostasis
  + Homeostasis – internal balance
    - If you’re cold, you shiver
    - If you’re hot, you sweat (perspire)
* Directional Terms
  + Superior/Cranial – toward the top of the head
    - The neck is superior to the chest
    - Your cranium is your brain
  + Inferior/Caudal – away from the top of the head
    - The legs are inferior to the stomach
  + Anterior/Ventral – toward the front of the body
    - The eyes, nose, and mouth are on the anterior.
    - The belly is ventral.
  + Posterior/Dorsal – toward the back of the body
    - Our spinal cord extends down the posterior side.
    - The back is dorsal; fish have dorsal fins
  + Lateral – toward the side of the body
    - Your arms are on the lateral sides of your body.
  + Superficial/External – toward the surface of the body
    - The skin is superficial to the muscles.
    - Your skin is external.
  + Deep/Internal – away from the surface of the body
    - The heart is positioned deep in the body.
    - Your organs are internal.

Skeletal System

* Functions
  + Shape, support, movement, protection, storage, blood cell production
* Skeleton
  + Bones in body
  + As a baby: 275; as an adult: 206
  + Backbone (vertebrate) – center of skeleton – 26 bones
* Joints
  + Place where bones join
    - Hinge – forward and backward movements; bend and straighten; knee/elbow
    - Ball and socket – greatest range of motion; hips/shoulder
    - Pivot – allows 1 bone to rotate around another; side to side motion; neck
    - Gliding – allows 1 bone to slide over another; bend and flex; side to side motion; wrist/ankle
* Bones
  + Living structures – undergo growth and development
  + Contain minerals – calcium and phosphorus
    - Makes them strong and lightweight
  + Form new tissues as you grow
    - If you break a bone – new bone forms to fill in gap (reason for cast)
* Bone structure
  + Outer membrane with blood vessels
  + Compact bone – hard and dense, not solid
    - Contains small canals that carry blood vessels and nerves
  + Spongy bone – layer with many small spaces
    - Spaces that contain marrow
  + Red marrow – produces blood cells
  + Yellow marrow – stores fat
* Ways to keep bones healthy
  + Diet
  + Exercise
* Osteoporosis – weak and brittle bones